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CATHODE MATERIAL FOR LITHIUM BATTERY

ABSTRACT OF THE DISCLOSURE

A method is disclosed for synthesizing a crystalline metal oxide powder material containing two or more uniformly distributed metal elements. Crystalline, water containing, oxygen containing inorganic acid salts of the metals are heated to liquefy the salts. The apparent solution contains a uniform mixture of the metal elements. The water is removed from the liquid and the resulting powder calcined in air to decompose the acid salts to a mixed metal crystalline oxide. The method is particularly useful to make doped LiNiO_2 type crystals using hydrated nitrate or nitrite salts of Li, Ni and the dopant elements. Examples of useful salts are $\text{LiNO}_3 \cdot \text{H}_2\text{O}$, $\text{Ni}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$, $\text{Co}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$, $\text{Al}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$, and $\text{Mg}(\text{NO}_3)_2 \cdot 6\text{H}_2\text{O}$.